

PATENT
Docket No.: US010394
Customer No. 000022878

MARKED UP COPY OF AMENDED CLAIMS 1, 6, 11 AND 18
PURSUANT TO 37 CFR §1.121 (c)(1)(ii)

1. (Twice Amended) An acoustic imaging system, comprising:
a transducer including a two-dimensional transducer element matrix array encased by a protective cover and a transducer body, the [transducer having a] protective cover configured to mate with a protective cover mounting portion of the transducer body, the protective cover for being superposed above the two-dimensional transducer element matrix such that acoustic energy incident at the protective cover from the two-dimensional transducer element matrix is mechanically directed by the protective cover, wherein the protective cover further comprises an acoustic material for exhibiting an acoustic impedance corresponding to an acoustic impedance of a body to be imaged [and wherein the transducer element matrix array is encased by the protective cover and the transducer body]; and
an image processing system coupled to the transducer and configured to provide a plurality of individualized excitation signals each being delayed by a predetermined delay with respect to each other to control respective transducer elements of the plurality of transducer elements at different times for controlling the transmit aperture of the acoustic imaging system over time such that the two-dimensional transducer element matrix array generates and transmits acoustic energy through the protective cover over time such that acoustic energy transmitted through the protective cover is electronically focused, wherein the image processing system electronically focuses transmitted acoustic energy at a target by electronically compensating for the focusing characteristics of the protective cover as a function of non-uniform acoustic delays caused by the protective cover.
6. (Amended) The acoustic imaging system of claim 1, wherein the protective cover has a transducer-engagement end having a tissue-engagement surface, the

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transducer-engagement end being configured to engage [a] the transducer body, and
the tissue engagement surface forming a portion of a substantially cylindrical surface.

11. (Amended) The acoustic imaging system of claim [10] 1, wherein the electronic compensation is further a function of [the] a position of [the] a target point.

18. (Twice Amended) A method for acoustically imaging a patient, comprising the steps of:

providing a transducer having a two-dimensional transducer element matrix array encased by a protective cover and a transducer body, the [transducer having a] protective cover configured to mate with a protective cover mounting portion of the transducer body, the protective cover for being superposed above the two-dimensional transducer element matrix such that acoustic energy transmitted from the protective cover and into the body is mechanically directed by the protective cover, wherein the two-dimensional transducer element matrix array and the protective cover are shaped to reduce patient discomfort, further wherein the protective cover further comprises an acoustic material for exhibiting an acoustic impedance corresponding to an acoustic impedance of a body to be imaged;

generating a plurality of time delayed transmit signals each for separately controlling a respective transducer element of the two-dimensional transducer element matrix array to electronically focus acoustic transmit waves that traverse through the protective cover; and

receiving a plurality of time delayed response echoes at the separately controllable individual transducer elements of the two-dimensional transducer element matrix array to electronically focus acoustic receive echoes that traverse the protective cover, wherein the image processing system electronically focuses transmitted acoustic energy at a target by electronically compensating for the focusing characteristics of the

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HAYNES & BOONE

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protective cover as a function of non-uniform acoustic delays caused by the protective cover.

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